PUBLIC MEETING
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BOISE, IDAHO

JUNE 8, 1994
6:30 p.m.

MODERATOR

Nolan Jensen, Department of Energy

TEST AREA NORTH GROUNDWATER CONTAMINATION
OPERABLE UNIT 1-07B

Presenters:
Dan Harelson, DOE-Idaho
Greg Stromberg, EG&G

TRACK 1 INVESTIGATION AT TEST AREA NORTH
OPERABLE UNITS 1-01, 02, 06, 09

Presenters:
T.J. Meyer, EG&G Idaho

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Page 2

INDEX

Page 3

MR. JENSEN: Okay. My name is Nolan Jensen. I work for the Department of Energy in Idaho Falls and I'll be acting as kind of a moderator tonight. I'd like to welcome you all here.

A couple of purposes for our meeting tonight, of course, is here on this chart, really two basic reasons. One is to give you information, answer questions, talk about any concerns you might have, and then the other is to receive your comments if you have any comments tonight on the plans that we have.

Before we get going, though, Rick is at the back of the room. Rick Tromblay manages the INEL office here in town and I'll just give him a minute to introduce himself.

MR. TROMBLAY: Good evening, everybody. I'd like to extend a warm welcome to all of you, those who came up from the INEL as well as those who came in from town and some of you came from the area but out of town.

I'm Rick Tromblay, I'm with the INEL Boise office, and I know most of you. I know Helen, Fritz, Joe, Kathy is over there.

I would like to let you know that a

Page 4

lot of the information in detail is stored at our office on 816 West Bannock on the third floor. All of these project people keep us well up to date with information on the current status of different cleanup sites, so that if you want to continue to follow what's going on with Test Area North or any of the other areas insofar as cleanup or other initiatives, don't hesitate to come up to the office and pay us a visit. Again, we're at 816 West Bannock on the third floor and my phone number is 334-9572. And I'd like to once again thank you all for coming and thanks so much for your interest.

MR. JENSEN: Thanks, Rick. Really what we do is descend upon his office unannounced and use up all his space.

Okay. A couple of things I want to talk about before we get into the meeting, and that's just a real brief update of where the Environmental Restoration program at INEL is.

We're about three years into the Federal Facility Agreement that we signed with EPA and the State of Idaho. We have representatives from both of those agencies here tonight and they'll talk in a few minutes. But

Page 5

in those three years, we have completed nine Records of Decision and we have two more that are very near completion. We did a public meeting a couple of months ago here, and so those will be coming up soon, and then this project will be Record of Decision Number 12, so we're real pleased with that.

We met 27 of our enforceable deadlines so far, and we've only had 27, so we've met all those. We're accelerating several projects, we've completed a couple of interim action cleanups, one of those was the TRA Warm Waste Pond. We came up with a public comment period on that a couple of years ago.

And then some unexploded ordnance, that project, the first phase was completed. So things are moving along and we're real happy about that.

Tonight we're going to be talking about Test Area North, or TAN, as we commonly refer to it. And the proposed plan, if you'll notice, has two general parts, and we'll be kind of dividing the meeting into two separate meetings almost.

The first part, we'll be talking about

Page 6

TAN groundwater contamination, and then we'll be talking about several preliminary investigations that we call Track 1s. And this charter up here is intended to give you a little bit of a feel of how things are organized.

At the INEL there are ten Waste Area Groups. Test Area North is Waste Area Group 1. And basically the Waste Area Groups correspond to that facilities across the desert. And each of those Waste Area Groups are divided into what we call Operable Units, and then the Operable Units are divided into other sites, individual sites, and we kind of group them together in like problems.

Well, in WAG 1, Waste Area Group 1, which is TAN, which we're talking about tonight, this is the project that we'll be talking about for the most part, the TAN groundwater, it's closely related to an injection well interim action. That action is already ongoing. In fact, this injection well is the source of the contamination that we'll be talking about tonight and there is – we're pumping water out of that well now and treating it, and Dan Harelson will talk to you about that in a few minutes.

Page 7

And then we'll also be talking about these Track 1 investigations. And they are several smaller sites from some of the other Operable Units that we've done investigations on, so we'll be talking about those.

So basically what we do is we have several of these different sites, Operable Units, that we are doing investigations on. After we do all of that work, at the end, we'll kind of wrap it all together in a big comprehensive investigation, and that will basically do the job of – since we've looked at them all individually now, this investigation will look at them from the big picture and see if there is some cumulative comprehensive effects that we missed or potentially didn't adequately evaluate when we were looking at the sites just by themselves. So that will be coming up starting in about a year for Test Area North.

So hopefully that will give you kind of a feel for how things are organized and what we'll be talking about tonight.

Okay. One other thing I want to talk about very briefly, and those of you who were at our meetings a couple of months ago will have

Page 8

seen this already, but you have to bear with me, and that's just to give you an introduction about really what this is all about. And that is, essentially what we are doing is looking at all the sites that we've identified at INEL where there could have been or where we know there has been a release of a contaminant, a hazardous contaminant. And the whole thing we're doing is checking to find out what the contaminants are and what kind of risks they pose.

And so when we talk about risks, there are two general types of risks that we do the assessment on. One of those is carcinogenic risk, or cancer-causing contaminants, and then the other is the other contaminants that have any other type of health effect, like organ damage or birth defects, anything like that. And they're expressed differently.

For carcinogenic risk, we refer to just that, to the risk of – to the potential risk for contracting cancer. The Environmental Protection Agency has set up a risk range that is deemed to be acceptable, and that risk range is between one and 10,000 and one and 1,000,000 chances of cancer, chances of contracting cancer,

Page 9

above the national average. So if we do the risk assessment and find out that the risk falls within or below that range, then it's deemed to be acceptable and no cleanup is likely required.

In the case of noncarcinogenic risk, we refer to a hazard index. And what that hazard index is, it's an evaluation of how likely or how unlikely it is that exposure to that situation will cause sensitive populations to have that health effect. And if we're at a hazard index of one or below, then we have a high degree of certainty that even sensitive populations will not have that health effect.

As we get above one, then our comfort level decreases and we may need to do cleanup, but one and below, there's a high degree of certainty that there is not a problem.

So hopefully that will just give you a brief introduction and we'll be referring to this throughout the presentation tonight to give you kind of a feel for what's going on.

Okay. Just one last thing about the meeting format and then I'll introduce our presenters.

Like I said, the meeting will be in

Page 10

two parts. We'll talk about the TAN groundwater first, and then we'll talk about these other preliminary investigations. And so we'll have about a 10- or 15-minute presentation, we'll follow that with a question-and-answer period, and then we'll follow that with a formal comment period. And we have a court reporter here, so if you'd like to give a comment, that can be taken down.

So I'll go ahead and introduce now some of our associates.

First of all, all of the work that we do is under what's called our Federal Facility Agreement and Consent Order. It's an agreement that we signed with EPA and the State of Idaho to do the cleanup work.

And we have tonight with us Margie English, who will talk to you. She's from the Department of Health and Welfare here, Division of Environmental Quality. And then after she takes a minute, Matt Wilkening from EPA Region 10 in Seattle will take just a minute.

MS. ENGLISH: Thank you, Nolan.

I am the Waste Area Group manager for the State working with the Test Area North

Page 11

project. And I'd also like to introduce to you a couple other members our State team that are here in Boise that are here tonight.

We have Jeff Fromm, who is a toxicologist, and he's helped us evaluate the risk associated with these sites.

Also we have Gary Winter, who is a hydrogeologist, and he's helped us evaluate groundwater concerns.

And also is Dave Hovland. He is here. He is a technical supervisor that has helped me coordinate the reviews of these projects over the years.

So on behalf of myself and my colleagues, I'd like to welcome you to this meeting. We're really glad that you came out tonight. The State does encourage the public participation process and it's good to see – I know a couple of you at least were here at our meetings about a month and a half ago for the NRF and RWMC project, and we're very glad to see your continuing interest in the INEL projects.

Tonight you will hear about a very complex groundwater problem and one that's going to be very difficult to solve. We have worked

Page 12

over the past couple years with the DOE and the EPA to evaluate the problem and to come up with viable remedial alternatives, and it has not been an easy process for a number of reasons, but we believe that the preferred alternative that you will hear about tonight is the best approach to continue to address this problem.

And as Nolan and said, and it's stated up here, the purpose of the meeting tonight is to present the data about these sites and this problem to you, to present the remedial alternatives, give you a chance to ask questions about them, and then to get your opinions about the proposed remediation strategy.

And any comments that you make, either verbal or written, will then be used by us, the three agencies, to determine the final remedial decisions for the sites.

So with that, once again I'd just like to thank you for coming and encourage you to ask any questions or offer any comments that you might have.

Thank you.

MR. WILKENING: I'm the project manager for the Environmental Protection Agency.

Page 13

As you've heard, we've worked cooperatively with the State and the Department of Energy on this project, came up with a series of alternatives, and selected one that we believe is the best. EPA believe that the proposed actions for Track 1s and the groundwater are protective of human health and the environment and yet are cost-effective. And the preferred alternative for the groundwater is also consistent with the statutory requirement for treatment to a maximum extent possible.

However, these are just proposed alternatives. We do request your comments and questions regarding these, and we welcome them. No alternative will be selected until we have received all your comments and we have also given them due consideration. And so we thank you for coming here.

Nolan?

MR. JENSEN: Very quickly, by the way, I see many you have gotten some of the literature. This is the proposed plan. This is a document that gives some of the background about the projects that we'll be discussing tonight.

Page 14

And also, I forgot to mention, just for a general overview of the cleanup program, this Citizens' Guide was developed and gives kind of a brief broad-brushed overview, so you're welcome to take those.

Also, Reuel asked me to thank those of you who have already submitted written comments. We have received some of those from you and appreciate that.

I'll go ahead and introduce our presenters now. First, Dan Harelson from Department of Energy will talk to us, and then Greg Stormberg, who also worked on this project as an investigator for EG&G, but I'll introduce Dan now and we'll do the presentation.

MR. HARELSON: As Nolan said, I'm Dan Harelson. I'm the Waste Area Group manager for the Test Area North and I work for the Department of Energy.

As I'm sure most of you are aware, the Idaho National Engineering Laboratory is a Department of Energy facility that's about 50 miles west of Idaho Falls. The whole site covers about 890 square miles. The majority of the work and the facilities are in the southern portion of

Page 15

the site. There is one facility called Test Area North which is in the northern part of the site. It's about 28 miles north of the other facilities.

The general groundwater flow direction is to the southwest. That's the Snake River Plain Aquifer. At the Test Area North, there's a little bit of a southeasterly component, but it hooks around and follows the general flow direction.

Test Area North was initially established to support the development of nuclear-powered aircraft. This was done in the 1950s and the very early 1960s. The program was canceled in the early 1960s, and that was followed by a couple of programs that did research and development on nuclear energy, and there are a couple of small programs going on there now, but it is being gradually phased out at the facility at that end of the site.

There are four main facilities at the Test Area North. The Technical Support Facility, as the name implies, is support facilities that includes maintenance shops, offices, the guard house, the fire house is located there. Core

Page 16

debris from the Three Mile Island reactor is also being stored there. And there is a hot shop, which is a large area where radioactive equipment can be worked on.

The Initial Engine Test Facility is the test stand that was used for these nuclear-powered aircraft engines. Those engines are currently on display down at the Experimental Breeder Reactor 1. This facility is not in use at all now and it is gradually being dismantled.

The Loss-of-Fluid Test Facility and the Water Reactor Research Test Facility were both built to support this research and development on nuclear energy. Those programs have been completed, were pretty well wound down by the early 80s. Currently at the Loss-of-Fluid Test Facility the Army is manufacturing advanced armor for the M1-A1 tank.

There are a couple of small projects going on at the Water Reactor Research Test Facility. One of them is research on a bomb detector for use in airports and that kind of thing.

This is a little bit closer view of the Technical Support Facility. The injection

Page 17

well that we are talking about is located right about here. This is kind of looking up to the north.

The injection well is a 12-inch diameter pipe that goes directly to the aquifer. It was used from about 1955 through 1972 to dispose of pretty much all of the wastewater that was generated at the Test Area North. That is everything from industrial and processed wastewater to treated sanitary sewage effluent.

The industrial and processed wastewater has created a contaminant plume. The most widespread contaminant is trichloroethylene, which is also called trichloroethene, or TCE. It extends in a plume that's about a mile and a half long and roughly half a mile wide.

The contamination was first discovered in 1987 during routine drinking water monitoring. We installed an air sparging system to treat the drinking water and keep the contamination levels below the federal drinking water standard.

In early 1990, the Department of Energy went in and removed about 45 cubic feet of sludge from the injection well itself. We

Page 18

followed that in 1992 with a proposed plan for an injection well interim action, and then also scoping for this meeting, or for the investigation that is the subject of this meeting, which is the Remedial Investigation/Feasibility Study.

The injection well interim action involves pumping and treating contaminated groundwater directly from the injection well. That effort began operation in mid-February. We originally intended to pump at about 50 gallons a minute continuously from the injection well. We have not been able to get off to that good of a start, or bad of a start, depending on how you look at it. We have been finding contaminant levels much higher than we anticipated, and also different contamination than we anticipated. We have been operating what's called a batch mode, which means we bring in about 15,000 gallons of water at a time, treat it to meet federal drinking water standards before it is discharged to an existing pond. To date with that action we have removed about 3,000 pounds of contaminants from the aquifer.

We're winding up the Remedial

Page 19

Investigation/Feasibility Study. Greg Stormberg is one of the principal investigators on that study. He will describe what we learned from that study, give you a list of the alternatives or the types of alternatives that we looked at, and then I will come back to describe the alternatives that are in the proposed plan and describe why we think the preferred alternatives should be preferred.

So with that, Greg?

MR. STORMBERG: Good evening. As Dan mentioned, what I'm going to try to do is present the findings from the Remedial Investigation, and then what I want to do after that is introduce you to the types of technologies that we considered for the groundwater problem and how we refine that list of technologies down to a smaller group that we then subject to a detailed analysis and then ongoing into the selection of a preferred alternative.

With respect to the Remedial Investigation, there were two main objectives. One is to define the nature and extent of contamination or the types of contamination and what's their distribution. And then secondly, we

Page 20

use that information to evaluate the risk posed by those contaminants.

With respect to the nature and extent, as part of the Remedial Investigation, we installed a number of groundwater monitoring wells. There were quite a few monitoring wells already present, but we went in and refined our conceptual model of the plume itself with some additional wells. We also collected several rounds of groundwater samples and had them analyzed for a number of analytes, the whole wide range, in fact.

And what we found is that we're basically dealing with seven contaminants that we are concerned about, and they include both volatile organics and radionuclides. The volatile organics are TCE, dichloroethene and tetrachloroethene. The radionuclides include strontium-90, uranium-234, cesium-137 and tritium.

During one of the sampling events, we also identified another radionuclide, and that was americium-241 in the injection well itself, but we only found it one time. With the operation of the interim action, as Dan

Page 21

mentioned, we found some other contaminants, and probably the most notable is dichloropropane. Again, it's a chlorinated volatile organic compound.

Okay. So basically what I'm trying to say, with the additional types of constituents that we're finding, we've got a dynamic system and we need to keep an eye on it as we continue with the interim action and as we get into the remedial action phase for the Operable Unit 7B.

As Dan mentioned, the most widespread contaminant is TCE. The plume extends from the Technical Support Facility, about a mile and a half down the groundwater gradient to the Water Reactor Research Test Facility here. It's about a half mile wide.

All of the other contaminants of concern are less widely distributed. And specifically, they would – they have only extended a quarter to about a half a mile from the injection well itself, so we use the TCE as our base line plume for evaluating the site.

That basically shows you the horizontal extent of contamination, but one of the other questions that was important to address

Page 22

was the vertical extent of contamination at TAN. The system of subsurface at TAN consists of basalt flows, numerous basalt flows that are typically fractured, with sediments that have been weighed down, we call these sedimentary interbeds, here and here.

The aquifer starts at about 200 feet below the land surface, and with the information that we have in hand, the effective part of the aquifer goes down to eight or 900 feet. So we have an effective thickness of about seven or 800 feet of aquifer, so it was important to determine the vertical extent of this contamination.

What we found as a result of the drilling and sampling program is that this interbed here, we call this the QR interbed, is composed of silts and clays and some fine sands, is 15 to 40 feet thick, and it's very continuous.

And this is fairly important with respect to the migration of the contaminants, because what we found with respect to groundwater quality is that the groundwater above this interbed is above drinking water standards for most of the contaminants of concern that I listed

Page 23

earlier, I mentioned earlier. However, the water below this interbed is free of contaminants above the federal drinking water standards. We have no detection of contaminants above any of the federal drinking water standards to date.

The importance of this information is that, as I mentioned, the effective part of the aquifer may be upwards of seven, 800 feet thick, and yet we are dealing with what we consider to be a contaminated groundwater plume that may be only 200 to 250 feet thick. What this does is it limits substantially the amount of water that we potentially have to treat. Okay.

One other point I'd like to make on the nature and extent of contamination is the source itself is an injection well. What we found is that 20 years after operations at TAN stopped disposing of the contaminants to the well, we still have the highest concentration of those contaminants in the immediate vicinity of the well. As we go away from this well, we see marked decrease in the contaminant levels. Even as far as only 100 feet away from the well, we see very sharp drops in contaminant

Page 24

concentration. What this tends to indicate is that we are probably dealing with residual undissolved contamination that's trapped in fractures and the flow tops of the rock matrix, okay, which is continuing to feed the contaminant plume itself. This also with, in addition to the limited extent, the volume, this has important implications with respect to the types of technologies we're going to take a look at.

With the nature and extent fairly well defined, what we did next is take a look at the risks posed by those contaminants. We basically took a look at three different scenarios.

The first was what we call a current industrial use scenario, where workers and visitors are using water from the current production well at TAN, they're located right here at the northern edge of the plume, from the present to about the year 2040.

We also took a look at two future residential use scenarios, one where a future resident can use contaminated water from anywhere within the general groundwater plume, and then the second future residential use scenario, we isolated specifically on the use of water from

Page 25

the injection well itself. We wanted to evaluate the two of them.

In all three cases, we evaluated various exposure pathways, how those contaminants are taken into the body. We evaluated the inhalation of the volatiles, for example while showering. We also evaluated the ingestion or drinking of that groundwater. And then for the future resident we included the ingestion of food crops that may be irrigated with contaminated water. Okay.

And what we found with respect to risk is that under the current industrial use scenario the total cancer risk to the workers and visitors equated to one additional incidence of cancer in about one million individuals. Okay. So using the definitions that Nolan presented earlier, we're below the acceptable risk range. We don't have a risk that we know of to the current worker.

The noncarcinogenic hazard index calculated at .003, so it's very, very low for that aspect, meaning it's unlikely that those sensitive populations, young children, older people, would be affected by any of the

Page 26

contaminants.

For the future residential use scenario, where water is taken from anywhere within the general groundwater plume, what we found is that the total cancer risk equated to three additional incidents of cancer per 100,000 individuals. We're still within the acceptable range defined by the EPA.

The calculated hazard index fell at about .8, again indicating that we're probably not going to adversely affect those sensitive populations.

On the other hand, when we take a look at the use of the water from the injection well itself what we found is that the total cancer risk equated to three – two additional incidents of cancer per 1,000 individuals. Okay. So we're above the acceptable range as defined by the EPA. And the noncarcinogenic hazard index was calculated at 23, okay, so that the use of the water from the injection well itself if it is not remediated or cleaned up provides or poses an unacceptable risk in the agency's mind.

Okay. Well, knowing that we have a risk that we need to evaluate and take care of,

Page 27

the next step in the Remedial Investigation/Feasibility Study process is to generate a feasibility study. And the purpose of the feasibility study is essentially threefold, or there's three stages to it.

You want to identify the range of technologies that are available and potentially viable for that site. In this case we're dealing with groundwater, so we looked at groundwater technology.

Secondly, you take that whole range of technologies and you screen them according to criteria set forth by the EPA. And what that screening does is allows you to narrow the list of your alternatives down to let's say a handful that you can then put to a very detailed analysis, basically under a microscope, so that you can get to a preferred alternative that has potential application at the site.

You can look at the technologies for groundwater in six general categories that we call general response actions. Each of these categories except the No Action category here, there were typically several to quite a few different technologies that may be applicable.

Page 28

For example, institutional controls include things such as alternative water supply, deed restrictions, fencing, things of that nature.

Containment technologies include things such as physical barriers, grout curtains for example, sheet piling. There's also hydraulic containment technologies where basically you just circulate that contaminated groundwater to prevent or minimize future migration.

Under the collection and removal of contaminants for groundwater technology, the most widely used are extraction wells, where we pull the contaminated groundwater out of the aquifer, we treat it, and then we reinject it with the injection wells or we put it in a pond and dispose of it.

Aboveground treatment technologies or treatment response actions are typically associated with the treatment of the waste itself, of the contaminated media itself. We could be dealing with things like air stripping, carbon adsorption, UV oxidation, ion exchange, things of that nature.

Page 29

And then treatment in place, probably the most common technologies associated with this are bioremediation technologies.

Basically, that just gave you some examples of those types of technologies that we took a look at for whether they can be implemented and are they cost-effective and, you know, are they going to be effective.

We took the whole range of technologies, then we screened them against various criteria, as I said, that are set forth by the EPA.

Some of these criteria include: Does a given technology protect human health and the environment?

Does it comply with the federal and state laws that are out there? Is it effective both in the short-term and long-term? How easy is it to implement? Some of them are more difficult than others. Does it reduce contamination, that could be toxicity or volume, or does it reduce the mobility of those contaminants?

We also look at cost. Two other criteria that we also screen the technologies or remedial alternatives are through public and

Page 30

state acceptance. That's why we are here tonight, to get your opinion on the technologies.

After we took the range of technologies and screened them, we basically came down to four remedial alternatives that we considered viable, and from that we selected a preferred alternative. And Dan will now give you the specifics on those four alternatives.

Thank you.

MR. HARELSON: As Greg said, we went through four or identified four alternatives that are presented in the proposed plan.

The first alternative is No Action. And just as the name says, we would not be doing anything to try to clean up or contain the contamination. The only thing that would be done would be monitoring to keep track of the way the contaminant plume changed.

Under the Superfund law, this alternative must be evaluated to provide a base line that everything else can be compared against.

The second alternative that we looked at was Limited Action. And this would involve

Page 31

limiting people's access to that contaminated water. And this could either be done through physical means such as fences, or signs saying "please don't put your well here," or it could be done through administrative means such as deed restrictions that said if you ever bought this property you could not install a well into the contaminated groundwater. It could also be accomplished by installing a well to provide alternative water well away from the contaminated groundwater.

And again we would be monitoring the change in the contaminant plume over time.

AUDIENCE MEMBER: Question?

MR. HARELSON: Sure.

AUDIENCE MEMBER: On the figures at the bottom, is that yearly, an annual cost, or –

MR. HARELSON: No, it would be amortized over 50 years, I believe, up to 2040.

AUDIENCE MEMBER: So that would be the total cost over the life of the project –

MR. HARELSON: Right.

AUDIENCE MEMBER: – yeah, over 50 years?

MR. HARELSON: Alternatives 3 and 4

Page 32

are very similar.

Alternative 3 is our preferred alternative. It would involve three main pieces.

The first piece would be continuation of this interim action that we've spoken about.

The second piece would be an attempt to remediate that hotspot, is what we call it, in the immediate vicinity of the injection well, where we think there is still this residual undissolved contamination.

And then the third piece would be extraction of a portion of the contaminated groundwater plume where we have dissolved contaminants.

The interim action would be continued for two years, and during that period we would be designing and constructing this enhanced remediation facility for the hotspot.

The continuation of the interim action would allow us to keep removing contamination while we're designing and constructing the second phase. It would also provide some limited measure of hydraulic containment. By sucking contaminated water back out of the injection

Page 33

well, it would keep it from spreading as quickly as it is.

The second piece would use what's called an enhanced remediation technology. We are looking at surfactant-enhanced and steam-enhanced technologies.

What a surfactant-enhanced technology uses is a surfactant, or basically a soap that would be injected around the injection well and then pulled back out. The soap or surfactant would improve the removal of contaminant. The contaminated water would then be treated, and then water that would meet drinking water standards would be reinjected.

Steam-enhanced remediation would involve the same kind of process except high-pressure steam would be injected and the steam would help strip the contaminants away from the aquifer.

The third piece of the preferred alternative would involve remediation of the portion of the plume that is contaminated above 5,000 parts per billion of trichloroethylene. And that is a fairly small piece of this contaminant plume.

Page 34

Alternative 4 is identical to Alternative 3, except for the third piece, which would attempt to address this much larger portion of the contamination.

With Alternative 4, in theory, if this portion of the plume were remediated, the entire contaminant plume would be below federal drinking water standards by the year 2040, which is projected when the area would be available for other uses outside of DOE.

We would be on Alternative 3 operating for five to eight years. We would be looking to ten to 40 years on Alternative 4. There's quite a cost differential there.

Alternative 3 is our preferred alternative, even though it does not address the entire contaminant plume.

Alternative 3 focuses on the source. The remainder of the plume would be addressed under the WAG-wide and an INEL-wide comprehensive RI/FS. By focusing on the source, we are directing our resources at the worst part of the problem. We will be learning about the best way to approach this problem.

By deferring the cleanup of this

wider

Page 35

portion of the plume to these subsequent investigations, we hope to take these lessons and reduce overall costs and still reduce contamination.

So with that, I'll turn it over to Nolan.

MR. JENSEN: Thanks, Dan. That concludes the formal presentation part, but we'll go into a question-and-answer part now and we will have Dan and Greg come back up here and answer any questions that you have.

Just ask you, out of experience that we've had, if you have comments, save those for the comment part and keep the question and answer period right now and when we – what happens is after we get comments and we go to the Record of Decision, there will be a written response to each of those comments. And so we like to make sure we keep those comments as pure as we can so that we respond to them appropriately. But keep it informal if we can and go ahead and ask any questions you've got.

AUDIENCE MEMBER: Well, couple of questions.

One, early on you had mentioned

Page 36

50-gallon-per-minute pump-and-treat target rate. You're saying now that what you're doing is more of a batch type of –

MR. HARELSON: That's correct.

AUDIENCE MEMBER: Okay. What does that work out to? I mean, how close is that to your 50-gallon-per-minute –

MR. HARELSON: What has happened is we designed – we took some sample from the injection well and found a set of conditions, a contaminant level, so we designed our treatment plan to handle those conditions. We've been finding contaminant levels that are 30 times higher than what we anticipated. We are finding new contaminants that we hadn't seen. And we believe that the reason we're seeing these new contaminants and higher levels is we never really pumped that injection well as hard as we've been pumping it.

I think in terms of pounds of contaminants removed, we are probably doing better than if we had been pumping at 50 gallons a minute at the concentrations we anticipated. So in terms of pounds of contaminants removed, I think we've been very successful. We haven't

Page 37

been, you know, pumping at gallons per minute that we planned on, but we have, as I said removed, over 3,000 pounds of organic contamination.

MR. STORMBERG: Just to interject, we are approaching the rate that we projected for the interim action. We're in the 40 to 50 range, but it's not continuous.

AUDIENCE MEMBER: Now I have a follow-up question to that.

Should the preferred alternative be put into place, would that continue to be a batch type process or are you looking at a continuous flow of –

MR. HARELSON: It would, I think, be continuous, yes. You know, part of this – my training is in engineering, and the engineering of this stuff is easy. You have to know what you got coming in and what – you know, you can design something to send out what you want. What the hard part is, is we are not sure what we're going to have coming in. And that's what we've learned on this interim action.

You know, the engineering was easy to design a plan for the concentrations we expected,

Page 38

but now we're getting concentrations that are much higher. And I don't see that changing with the preferred alternative. I think we're going to get surprises.

MR. JENSEN: But in general right now you're working in batch mode until things stabilize, and then you hope to go continuous; is that right?

MR. HARELSON: Yes, that's right. We have had initial batches that came in at very high levels, and those levels have kind of dropped off. And we are very hopeful that in the next very near future we'll be able to go to this continuous operation. But we had some initial very big slugs of contamination. The levels have dropped off, and we're to the point where we're very hopeful that we'll be able to go continuous very soon.

AUDIENCE MEMBER: Now, would the surfactants and steam tend to cause another one of these kind of a big bump of contaminants?

MR. HARELSON: Potentially – well, I think that's the desired effect. Yeah, potentially they would. Greg can maybe talk to this better than I, but I think initially not

Page 39

only in the enhanced pump-and-treat, but in standard pump-and-treat, you start with high levels of contamination and as you work they tail off.

MR. STORMBERG: The difference between the conventional and the enhanced that we're proposing, as you might or might not know, under conventional technologies, all you can do is pull water out that has the dissolved contamination. Okay. In the case of the injection well, we have some suspended particulate type matter that also has some contamination with it, which is causing fairly large peaks in our concentrations.

With the enhanced alternative or enhanced technologies, the purpose of that enhancement is to increase that solubility to get more of the contaminants to come out of that undissolved residual phase into the dissolved phase, and then we pull it out.

Basically we're trying to circumvent the chemistry and boost up the solubility of the contaminants. So I think that the system would be designed inherently to deal with high concentrations, much higher than we anticipated in the interim action.

Page 40

AUDIENCE MEMBER: I would assume also a somewhat different nature of contaminant; right? Some of the contaminants would be naturally in the water rather than – would be pretty easy to pull out of the water, wouldn't they?

MR. STORMBERG: Some are – some sorb to the rock matrix more than others, yes, hopefully it will enhance both.

AUDIENCE MEMBER: So are you saying some are attached to the rocks, they've adhered to the rocks?

MR. STORMBERG: More so than – for example, the volatile organics are fairly soluble in relation to some of the radionuclides. The radionuclides such as cesium tend to have high sorption capacity.

AUDIENCE MEMBER: Can you put that chart back up that has the underground sort of...

MR. HARELSON: The cross-section?

AUDIENCE MEMBER: Please.

Now, this injection well at its – can you explain to me why there's a variant of 200 to 400 feet, or what is the – when this thing tails out, at what level does it tail out?

Page 41

MR. HARELSON: The injection well is drilled down to, I think, 305 feet. This – yeah, roughly here. The interbed here is at about 400 or 420 feet below the surface. The water table is about 200 feet below the surface. We put wells, sampled above and below. Above the interbed it was contaminated, below it was clean.

AUDIENCE MEMBER: So if the water level today is at 200 and you're finding high contamination at the 200-foot level because it's within that aqueous environ, what if between 1952 and 1971 this – when the injection process, what if the aquifer were higher and there is contamination above the present water table?

MR. HARELSON: That's a very good question.

Greg?

MR. STORMBERG: He passes the hard ones on to me.

It has dropped over the course of the last ten years, I think on average three or four feet it's dropped. Okay. With the tools that we have now to analyze for some of the constituents, sometimes we can see that. Okay. We can tell whether that has happened.

Page 42

We do not see that with the radionuclides, for example. We do logging on these wells and we would be able to see in the vicinity or just above the injection well if there were say a spike of cesium. I can't answer that for the volatile organics. It is possible, as Dan mentioned.

MR. HARELSON: On these remediation technologies, I think the steam enhancement could be designed to try to address that, so that you could clean up above the water table. You know, you would inject your steam and then collect it, and you could put your collection up here so that you could pass that steam through the portion that doesn't necessarily have water in it now.

I'm not sure on the surfactant. Can you do that?

MR. STORMBERG: No. The steam would cause more of a volatilization if there were contaminants.

AUDIENCE MEMBER: Is there a plan to look at that now or attempt to do that?

MR. STORMBERG: No, there is not.

AUDIENCE MEMBER: Because if the water table goes back up, aren't you going to have the

Page 43

same problem?

MR. STORMBERG: If there is residual contamination left. If it's just the volatile by-product, probably not. As Margie English mentioned, this is a very complex system. As you might know, there is undissolved residual contamination. There are quite a few similar sites across the nation with this same problem, and that's why we are proposing these innovative technologies here rather than conventional technologies, because conventional pump-and-treat has a very, very difficult time of success to the scale that is necessary.

AUDIENCE MEMBER: I have some concern about the surfactant, because although I understand the purpose of it, how can you be sure that you're going to pump all of it out? And what kind of a life span does surfactant have in the groundwater?

MR. HARELSON: That is also a concern of ours. We would need to select a surfactant that is nontoxic and biodegradable, so that aspect of it would be looked at very carefully. And that is a very legitimate concern.

MR. STORMBERG: They do make

Page 44

surfactants that are biodegradable.

MR. JENSEN: Soap.

MR. STORMBERG: Yes, basically.

AUDIENCE MEMBER: I'm not sure that this is quite the place to ask this, but one concern that I've had for some time is at what point in the process the cost part of it is factored in.

It's always been kind of my hopes that the science would come first, and then once having looked at that then say, okay, now what is this going to cost, rather than saying, well, you know, factoring it in all the way down the line.

Certainly, you know, the Alternative 4 looked to be two to three times the amount of the preferred alternative.

I guess my question would be, were these evaluated first as far as effectiveness and then have the dollar figures attached, or was the preferred – is the preferred alternative, you know, basically a combination of the two?

MR. HARELSON: They were evaluated – cost is a factor. There are a hierarchy of – this standard EPA methodology for evaluating things has a hierarchy of what you look at most

Page 45

importantly. And they have the – what they call threshold criteria, which are protect human health and the environment and comply with ARARs, which are regulations, laws and regulations.

Those are looked at first. These others are looked at on an equal footing. With Alternative 3, we're not saying walk away from the rest of the plume because it costs too much. What we're saying is, let's try to remediate the worst part of the plume, see what we can learn, and then address the rest of the plume in the subsequent investigations when we'll understand the problem better and can perhaps approach it more cost-effectively.

AUDIENCE MEMBER: Obviously

the goal is to clean this place up, but the problem is, if you've got a real bad problem in the area of the injection well, and you don't know where the water table was before, I mean, it's good to clean it up, I see that, but to spend $25 million when you don't know if you're even going to make a dent if the water table comes back up, I mean...

MR. HARELSON: That's a lot of money.

AUDIENCE MEMBER: That's a lot of

Page 46

money.

MR. STORMBERG: The water table has not dropped I think as significantly as the comments implied. It has dropped three or four – three to five feet in the 50 years. We have fairly good records in that respect.

AUDIENCE MEMBER: Okay.

MR. HARELSON: Is that trend going to –

MR. STORMBERG: I don't know about the trend, but we know we have at least 250 feet of contaminated soil; so we're looking at a relatively – I mean, your question has come up before, very definitely.

AUDIENCE MEMBER: Well almost the inverse of that, but at the rate we seem to be sucking on that aquifer down at this end, looks like as you draw more and more from one end the rate of dispersion might come even faster. I presume that the network of monitoring wells is looking at that.

MR. STORMBERG: Yes, it is. The water table at TAN is fairly flat, meaning that it only – the water only moves about a half a foot per day, which is relative slow for the Snake River

Page 47

Plain. And as you just mentioned, the monitoring network is designed the monitor the continued migration dispersion of the contaminants.

AUDIENCE MEMBER: Kind of along those lines, the treated water would be reinjected?

MR. HARELSON: (Nodding affirmatively.)

AUDIENCE MEMBER: At the same site?

MR. HARELSON: It would be in the – nearby, not in the plume. We would try to locate the reinjection points to facilitate our remediation. It might be possible to locate these reinjection points so that it actually pushes the contaminated groundwater towards our extraction wells. The water that would be reinjected would need to be treated to meet the federal drinking water standards, so it would be water that is clean enough to drink right out of the pipe.

AUDIENCE MEMBER: So, assuming that the water going back in is clean and all of that, there would be little net loss of water in the aquifer then as a result of these?

MR. HARELSON: That's right.

MR. STORMBERG: Right.

Page 48

AUDIENCE MEMBER: The air stripping, I would assume that, you know, now, that's for the volatile organics. Right?

MR. HARELSON: Right.

AUDIENCE MEMBER: Now, is there much evaporation as part of that?

MR. HARELSON: Of the water?

AUDIENCE MEMBER: Yeah.

MR. HARELSON: It would be incidental. There would not be a lot of loss. In terms of the air stripping, we are trying to approach the design of the treatment processes in a little bit different way than we have on other projects. On other projects, we have kind of come in and said, this is what we want to do and this is how we want you to do it. That's what we've told the subcontractors that we've hired.

One of the things that I've learned from the injection well interim action, you know, we wrote a Record of Decision on the injection well interim action and we said, this is what we're going to do, and we told our subcontractor, this is how we want you to do it, we want to use air stripping, we want you to use ion exchange.

The subcontractors have come back and

Page 49

said, you know, this is a better way to do it and we would have done it this way, except we had to do it, because that's what was said in the ROD.

So we are trying to write the ROD in a little bit more flexible manner, so that the people that are the real experts on the cleanup technologies that are out there available across the country can come back to us and say, you know, you told us what you wanted, this is how we would do it.

And then between me and the State and EPA, we can look at it and say, yeah, that seems like a good approach, it's going to – has the best chance of accomplishing what we want to accomplish, it's not going to make the problem worse, it's not going to pollute the air.

So air stripping is a possible technology, but we're also open to considering other technologies.

MR. JENSEN: Any other questions?

AUDIENCE MEMBER: I have one.

At the various levels of testing that you do, do you find that certain of these problem chemicals travel up better or more – in greater numbers, or certain sink, some are heavier, some

Page 50

are lighter?

MR. HARELSON: Yes. The trichloroethylene, the TCE, which is the widespread contaminant, is much denser than water. And we're not sure if there is a separate phase, like there's salad dressing that separates out, or whether there's simply, you know, this residual sludge, you know, the sanitary sewage waste from down there. There may be just organic matter that has a lot of this TCE tied up in it, but there is density differences, and there is potential stratification based on density.

MR. JENSEN: Any other questions?

By the way, what we'll do is when you're done with questions, we will do the comment period, and then Dan and Greg will be around and you can talk to them one-on-one later tonight if you'd like, but we welcome any questions you have now while we're here.

Okay. Let's go ahead and go into the formal comment period then.

During the comment period part now, this is the time for you to give your comments, state your concerns, speak your peace, and we won't respond to those. We'll just let you say

Page 51

what you'd like to say.
So if you would, if you have a comment to give, would you please give your name first, and speak loudly so the court reporter can hear you, and we will just let you give you comments.
Is there anybody – I don't think anyone signed up at the back to give a comment, so we will just open it up if anybody wants to give one. We may ask you for a clarification to clarify that, if we think there is something we might not understand. In general, it's your time if you'd like to take it.
Anybody?
Going once, going twice. Okay. And by the way –
AUDIENCE MEMBER: I do have a quick question. What is the deadline for written comment?
MR. JENSEN: I was just going to cover that.
Let's go ahead and close the comment period, but at the back of the proposed plan there is an addressed, postage-paid sheet. And the comment period goes through June 17. So anytime between now and, what, about a week from

Page 52

Monday, something like that, you can submit a written comment and attach to that, or whatever you need to do.
AUDIENCE MEMBER: And I may need to ask Rick about this. The other information that we might need to comment on this is at your offices?
MR. TROMBLAY: Yes, that's right.
MR. JENSEN: Also, by the way, right inside the proposed plan there are addresses for where the information is, like in Boise, again, that's Rick's office's address there.
If you need to call for information, there are phone numbers for – this is the DOE office, in fact, Reuel Smith's number is here at the bottom. The EPA office number, address is here, and the State office here in Boise is in there as well. So if you need information from any of us, you can feel free to call. Okay?
All right. Let's take about a ten-minute break and we'll let the other part, our presenter, get set up. The second half is a lot shorter than the first half, if you care, and we will talk about the Track 1s in about ten minutes.

Page 53

(Recess.)
MR. JENSEN: The second part of the presentation, even though it's part of the same proposed plan, it's kind of a different subject. And that is, when we first signed the Federal Facility Agreement with INEL, there were about four sites that we knew about that needed to be looked at.
Some of those are very obviously problems, like the groundwater we talked about and the injection well.
There were several other sites, however, that were very small. Maybe somebody heard about an acid spill or an oil spill or a gasoline spill, or several things like that. And we hadn't done a lot of investigation on those, so what we did under the Federal Facility Agreement is we set up a system whereby we could screen to see if there was an issue there that needed to be looked at further, whether it was something we could clean up real quickly or whether there was nothing there at all.
So what we did is set up a couple of investigation processes. We call them Track 1 and Track 2, just kind of made-up terms. And

Page 54

what they in general are, are for sites that are fairly small. And for a Track 1, generally the approach is that we know about the site, but there is information that we have, and we just go in and evaluate the existing information. There may have been some sampling data already in the files, or we may even collect a couple of samples. But in general, this is more of an evaluation based on what we know about the site already.
A Track 2 is more intense. We actually generally go out and take a few samples there and do a risk evaluation based on that.
The outcomes of those are, first of all, if we don't find anything, we make an initial determination that there's no more action needed.
If we find out that there is a definite issue, it's something we can run out and grab quick, like, for example if there was an oil spill or solvent spill, and it's a fairly confined area, there's stained ground there, we can see it, we can go out and grab it.
On the other hand, if we find out that there is contamination there that needs to be

Page 55

investigated further, then we forward the site to our Remedial Investigation/Feasibility Study.
So that is kind of the general approach we set up.
Tonight what we're going to be talking about are several sites that were the Track 1 type, and sites that essentially we made an initial determination no further action was necessary.
And as we do that, that is a preliminary determination, and now we're taking that and bringing it for public comment. And we will formalize that initial determination in the Record of Decision.
And I think this is the second project we have done that on. The one a couple months ago for Naval Reactors Facilities had some preliminary investigations that we were formalizing there as well.
But anyway, I'll go ahead, our presenter tonight is T. J. Meyer from EG&G, and I'll introduce him now and he will give the presentation on the Track 1s.
MR. MEYER: Thank you. Today I'm going to be presenting 31 Track 1 investigations

Page 56

which were outlined in the proposed plan, and then present the agency's recommendations for these 31 Track 1 investigations.
As Nolan said, Track 1 is a preliminary investigation. And one way to look at it is that, when you have a lot of existing information on a site, we try to pull all that information together to see if we can come to an earlier decision of what to do: No further action, removal action, or go out and do further investigation. And in this way, we saved a lot of money and we streamlined the investigation on these sites.
Tonight I'll be talking about 31 sites. There a total of 40 Track 1

investigations at TAN. The remaining nine need further investigation, so we will be presenting them at a later time.

The 31 investigations we will be talking about today can be categorized as 18 abandoned and removed or inactive – they're either removed or they're inactive underground storage tank sites. There's ten potentially contaminated sites. And I say "potentially contaminated," because the initial information

Page 57

that we had was that there was some debris on the ground, and it wasn't very well characterized, and so it looked like there was something there, but also looked like we had enough information to go out and make an assessment. So they were considered to be potentially contaminated.

There are three waste disposal sites also.

Each one of these sites had Track 1 investigation done, where all the historical information was gathered. And that information consisted of engineering drawings and process knowledge of how the site operated, including knowledge of what went on back in the '50s and '60s and '70s at some of these sites, and a collection of photos to try to document how the site was used and what happened at the site, to get an idea of the past condition.

Then each of the sites were visited, and in many cases, samples were collected to try to determine what the current conditions are at the site in terms of contamination and also with what the site looks like today.

Finally, a risk evaluation was done on this information, and the whole packet was put

Page 58

together.

These investigations typically are anywhere from 30 to 50 pages. This is just one of the sites. We have binders with all of these packets together, if anybody is interested in looking at them, and they're all available in the Administrative Record, the public record.

These packets consist of a bunch of questions, tables, sampling information, and the risk assessment which was used to describe or evaluate the site. And this is the evaluation information that the agencies have reviewed to make their recommendation.

The locations of these 31 sites occur across the TAN complex. Each of the major facilities were discussed earlier: The Loss-of-Fluid Test Facility; the Initial Test Engine Facility, located north, the Water Reactor Test Facility, which is in the southeast; and the main facility, which is known as the Technical Support Facility.

Each one of these facilities has several tanks at them, and the tanks are shown in a purple or violet color at each of the facilities.

Page 59

Only the Loss-of-Fluid Test Facility and Technical Support Facility had potentially contaminated soil sites, shown in green.

All three waste water sites occur at the Water Reactor Research Test Facility, and they're shown here in blue. And these wastewater sites received mainly processed water, uncontaminated processed water or sanitary water.

The results of the Track 1 investigations showed that 23 sites had no contamination at all. Nine of the sites, as I mentioned earlier, require additional work, and we're not going to be talking about them today.

Of the remaining 31 sites, eight of them had contamination found at them, and those sites are listed below in this table here. The location of the facility is shown here, and each of the facilities had a contaminated site. They weren't just localized at one facility.

The types of sites can be really characterized mainly as tank sites, and then there was one contaminated soil site.

This site here where there's contaminated soil, there was an underground storage tank nearby that had overflowed and had

Page 60

caused the problem.

The types of contaminants were shown here, and they're typically what you'd expect at underground storage tanks: Benzene, toluene, ethyl benzene and xylene type contaminants. And then the one contaminated site had a radionuclide.

The risk assessment that was done of these eight sites showed that there were only two sites that had potential carcinogens present, benzene and the cesium-137, the radionuclide. And the risk assessment for both of these showed that the contaminant levels present at those sites were below the carcinogenic risk range outlined by EPA, meaning there was acceptable risk range here.

The remaining risk sites are not considered carcinogens and the risk assessment showed that the hazard index for the ethyl benzene, the toluene and the xylene were below the noncarcinogenic hazard index level, indicating that sensitive populations were likely not to be affected by the level of contaminants found there.

If each of you have a proposed plan, I

Page 61

would call your attention to Table 3 on page 14.

And the first two columns are shaded for cesium and benzene, and they show the amount of benzene or the amount of cesium that would need to be present to create a risk above 10 to the minus 6. And each of those sites had contaminant levels below the numbers shown here.

The remaining three columns, the noncarcinogenic contaminants, toluene, ethyl benzene and xylene, again, you can see the contaminant levels there, and the levels we had at each of our sites were far below that, orders of magnitude below, and the levels are actually shown or described in each of the site descriptions.

In conclusion, the agencies are recommending no further action for each of these 31 Track 1 sites, based on the fact that the 23 sites from the preliminary investigations and historical records and the field sampling, no contamination was found, and for the remaining eight sites, the risk assessment showed that contaminant levels present posed an acceptable level of risk.

Are there any questions?

Page 62

AUDIENCE MEMBER: Well, one question. Being as, let's assume that this gets to the Record of Decision stage and they say, okay, our decision is that there is no problem here, we're going to move on. Do these sites remain in the inventory and will they be revisited at some point just to reconfirm that decision?

MR. MEYER: Yes, they will be revisited. If you remember earlier when Nolan was talking about this, there is this one Operable Unit at end of the TAN investigation call Operable Unit 1-10. That's the WAG 1 comprehensive RI/FS. Each of these sites will be revisited. First of all, the one question that will be asked is: Has anything new been learned that would change the earlier decision? And then they would be revisited to assess the cumulative risk of not just the one site that we've done here, but they'll see what the risk is at this site as well as other sites around to give you an idea what a receptor living there would see in terms of the cumulative aspect.

MR. JENSEN: This one right here would start in about a year.

MR. MEYER: Does that answer your

Page 63

question?

AUDIENCE MEMBER: Yes, it does.

Then I have one other question. I understand that in the – oh, that the reauthorization for CERCLA is going through Congress right now. They're talking about establishing some limits for radionuclides similar to what they've done with establishing limits for carcinogens. I've heard talk of 10 to the minus 4, 10 to the minus 6, various levels, to establish some kind of a cleanup or some kind of a – put a number on all of this, so to speak, quantify it somehow.

Should these changes go in, does this affect any of the work that's being done right now, particularly with the cesium and some of the others?

MR. MEYER: I really don't know the answer.

Nolan?

MR. JENSEN: Generally what happens in a Record of Decision is when that thing is signed you freeze your requirements at that date. So essentially whatever applies at the time the Record of Decision is signed, that's what

Page 64

applies. Now, I'm sure there are exceptions to that in some cases, as there always are, but that's generally their approach.

AUDIENCE MEMBER: So conceivably if the EPA does establish these levels for radionuclides, when we get to this comprehensive investigation, they might then apply those levels to the previous data?

MR. JENSEN: Possibility. For example, one thing we might do, if it turns out, for example, that this new law or the new reauthorization would drastically change what was done earlier, then if we decided with the EPA and State's concurrence that we wanted to do something different, that would probably be a ROD amendment and we would come back and do this same process over again. So that if we did do that, you would hear about it and get to comment on it. But I'd be pretty surprised if they changed things that drastically.

I think the intent is more to streamline and set some levels which, you know, they can be fairly comfortable with, and perhaps reduce some of the effort that goes into risk assessment.

Page 65

AUDIENCE MEMBER: Well, yeah, I know some of what we've been learning is that essentially some of the ways we've been measuring just aren't working, and I got the feeling it was to make things easier on everybody to quantify some of these levels, particularly the radiation levels, but I just didn't know how this could affect what's happening here.

MR. JENSEN: Did you want to say anything, Jeff, in addition or –

MR. FROMM: Well, yeah. I thought EPA was actually thinking about something more around 2, than 10 to the minus 4. I think if anything they might be a little more conservative with the risk management we're using now than what reauthorization might put into play. Based on what I've read, that might be the case. But I don't think there would be a great change either way.

MR. JENSEN: Just for your information, too, there is another investigation that is just getting under way. It's Operable Unit 10-06. And that one is looking specifically at rad-contaminated surface soils at the site. And one of the things we're trying to do there is

Page 66

get a feel how the risk assessment will work and try to come up with some of our own criteria or levels that we might clean up to. But that one is still ongoing.

Any other questions?

Going to be easy on me. Okay.

Reuel asked me to mention, on the back of the agenda for tonight we do have an evaluation form. We know we throw an awful lot of information your way at these meetings, and we're always trying to do better, and you're the ones that can tell us where we need to improve, so, please, if you have suggestions on how to improve these meetings, write them down.

AUDIENCE MEMBER: Coffee.

MR. JENSEN: Okay. Any more questions before we start the comment period?

And maybe I should even ask, is anyone planning on giving a comment?

Then we won't even bother with that formality. One more chance. I surely don't want to stop anyone who would like to give a comment.

Okay. I think that concludes it then.

Thank you very much for coming. And again, the comment period goes to June 17, so

Page 67

feel free to comment any time during that period, and we will see you next time.

(Meeting concluded at 8:13 p.m.)

Page 68

REPORTER'S CERTIFICATE

STATE OF IDAHO)

) ss. COUNTY OF ADA)

I, DENECE GRAHAM, Certified

Shorthand Reporter and Notary Public duly qualified in and for the State of Idaho do hereby certify:

That said hearing was taken down by me in shorthand at the time and place therein named and thereafter reduced to computer type, and that the foregoing transcript contains a true and correct record of the said hearing, all done to the best of my ability.

I further certify that I have no interest in the event of this action.

WITNESS my hand and seal this 8th day of July, 1994.

DENECE GRAHAM, C.S.R. and NOTARY PUBLIC in and for the State of Idaho.

My Commission expires April 21, 2000

I N D E X

MR. JENSEN: Okay. My name is Nolan Jensen. I work for the Department of Energy in Idaho Falls and I'll be acting as kind of a moderator tonight. I'd like to welcome you all here.

A couple of purposes for our meeting tonight, of course, is here on this chart, really two basic reasons. One is to give you information, answer questions, talk about any concerns you might have, and then the other is to receive your comments if you have any comments tonight on the plans that we have.

Before we get going, though, Rick is at the back of the room. Rick Tromblay manages the INEL office here in town and I'll just give him a minute to introduce himself.

MR. TROMBLAY: Good evening, everybody. I'd like to extend a warm welcome to all of you, those who came up from the INEL as well as those who came in from town and some of you came from the area but out of town.

I'm Rick Tromblay, I'm with the INEL Boise office, and I know most of you. I know Helen, Fritz, Joe, Kathy is over there.

I would like to let you know that a

lot of the information in detail is stored at our office on 816 West Bannock on the third floor. All of these project people keep us well up to date with information on the current status of different cleanup sites, so that if you want to continue to follow what's going on with Test Area North or any of the other areas insofar as cleanup or other initiatives, don't hesitate to come up to the office and pay us a visit. Again, we're at 816 West Bannock on the third floor and my phone number is 334-9572. And I'd like to once again thank you all for coming and thanks so much for your interest.

MR. JENSEN: Thanks, Rick. Really what we do is descend upon his office unannounced and use up all his space.

Okay. A couple of things I want to talk about before we get into the meeting, and that's just a real brief update of where the Environmental Restoration program at INEL is.

We're about three years into the Federal Facility Agreement that we signed with EPA and the State of Idaho. We have representatives from both of those agencies here tonight and they'll talk in a few minutes. But in those three years, we have completed nine Records of Decision and we have two more that are very near completion. We did a public meeting a couple of months ago here, and so those will be coming up soon, and then this project will be Record of Decision Number 12, so we're real pleased with that.

We met 27 of our enforceable deadlines so far, and we've only had 27, so we've met all those. We're accelerating several projects, we've completed a couple of interim action cleanups, one of those was the TRA Warm Waste Pond. We came up with a public comment period on that a couple of years ago.

And then some unexploded ordnance, that project, the first phase was completed. So things are moving along and we're real happy about that.

Tonight we're going to be talking about Test Area North, or TAN, as we commonly refer to it. And the proposed plan, if you'll notice, has two general parts, and we'll be kind of dividing the meeting into two separate meetings almost.

The first part, we'll be talking about

TAN groundwater contamination, and then we'll be talking about several preliminary investigations that we call Track 1s. And this charter up here is intended to give you a little bit of a feel of how things are organized.

At the INEL there are ten Waste Area Groups. Test Area North is Waste Area Group 1. And basically the Waste Area Groups correspond to that facilities across the desert. And each of those Waste Area Groups are divided into what we call Operable Units, and then the Operable Units are divided into other sites, individual sites, and we kind of group them together in like problems.

Well, in WAG 1, Waste Area Group 1, which is TAN, which we're talking about tonight, this is the project that we'll be talking about for the most part, the TAN groundwater, it's closely related to an injection well interim action. That action is already ongoing. In fact, this injection well is the source of the contamination that we'll be talking about tonight and there is -- we're pumping water out of that well now and treating it, and Dan Harelson will talk to you about that in a few minutes.

And then we'll also be talking about these Track 1 investigations. And they are several smaller sites from some of the other Operable Units that we've done investigations on, so we'll be talking about those.

So basically what we do is we have several of these different sites, Operable Units, that we are doing investigations on. After we do all of that work, at the end, we'll kind of wrap it all together in a big comprehensive investigation, and that will basically do the job of -- since we've looked at them all individually now, this investigation will look at them from the big picture and see if there is some cumulative comprehensive effects that we missed or potentially didn't adequately evaluate when we were looking at the sites just by themselves. So that will be coming up starting in about a year for Test Area North.

So hopefully that will give you kind of a feel for how things are organized and what we'll be talking about tonight.

Okay. One other thing I want to talk about very briefly, and those of you who were at our meetings a couple of months ago will have seen this already, but you have to bear with me, and that's just to give you an introduction about really what this is all about. And that is, essentially what we are doing is looking at all the sites that we've identified at INEL where there could have been or where we know there has been a release of a contaminant, a hazardous contaminant. And the whole thing we're doing is checking to find out what the contaminants are and what kind of risks they pose.

And so when we talk about risks, there are two general types of risks that we do the assessment on. One of those is carcinogenic risk, or cancer-causing contaminants, and then the other is the other contaminants that have any other type of health effect, like organ damage or birth defects, anything like that. And they're expressed differently.

For carcinogenic risk, we refer to just that, to the risk of -- to the potential risk for contracting cancer. The Environmental Protection Agency has set up a risk range that is deemed to be acceptable, and that risk range is between one and 10,000 and one and 1,000,000 chances of cancer, chances of contracting cancer, above the national average. So if we do the risk assessment and find out that the risk falls within or below that range, then it's deemed to be acceptable and no cleanup is likely required.

In the case of noncarcinogenic risk, we refer to a hazard index. And what that hazard index is, it's an evaluation of how likely or how unlikely it is that exposure to that situation will cause sensitive populations to have that health effect. And if we're at a hazard index of one or below, then we have a high degree of certainty that even sensitive populations will not have that health effect.

As we get above one, then our comfort level decreases and we may need to do cleanup, but one and below, there's a high degree of certainty that there is not a problem.

So hopefully that will just give you a brief introduction and we'll be referring to this throughout the presentation tonight to give you kind of a feel for what's going on.

Okay. Just one last thing about the meeting format and then I'll introduce our presenters.

Like I said, the meeting will be in

two parts. We'll talk about the TAN groundwater first, and then we'll talk about these other preliminary investigations. And so we'll have about a 10- or 15-minute presentation, we'll follow that with a question-and-answer period, and then we'll follow that with a formal comment period. And we have a court reporter here, so if you'd like to give a comment, that can be taken down.

So I'll go ahead and introduce now some of our associates.

First of all, all of the work that we do is under what's called our Federal Facility Agreement and Consent Order. It's an agreement that we signed with EPA and the State of Idaho to do the cleanup work.

And we have tonight with us Margie English, who will talk to you. She's from the Department of Health and Welfare here, Division of Environmental Quality. And then after she takes a minute, Matt Wilkening from EPA Region 10 in Seattle will take just a minute.

MS. ENGLISH: Thank you, Nolan.

I am the Waste Area Group manager for the State working with the Test Area North project. And I'd also like to introduce to you a couple other members our State team that are here in Boise that are here tonight.

We have Jeff Fromm, who is a toxicologist, and he's helped us evaluate the risk associated with these sites.

Also we have Gary Winter, who is a hydrogeologist, and he's helped us evaluate groundwater concerns.

And also is Dave Hovland. He is here. He is a technical supervisor that has helped me coordinate the reviews of these projects over the years.

So on behalf of myself and my colleagues, I'd like to welcome you to this meeting. We're really glad that you came out tonight. The State does encourage the public participation process and it's good to see -- I know a couple of you at least were here at our meetings about a month and a half ago for the NRF and RWMC project, and we're very glad to see your continuing interest in the INEL projects.

Tonight you will hear about a very complex groundwater problem and one that's going to be very difficult to solve. We have worked over the past couple years with the DOE and the EPA to evaluate the problem and to come up with viable remedial alternatives, and it has not been an easy process for a number of reasons, but we believe that the preferred alternative that you will hear about tonight is the best approach to continue to address this problem.

And as Nolan and said, and it's stated up here, the purpose of the meeting tonight is to present the data about these sites and this problem to you, to present the remedial alternatives, give you a chance to ask questions about them, and then to get your opinions about the proposed remediation strategy.

And any comments that you make, either verbal or written, will then be used by us, the three agencies, to determine the final remedial decisions for the sites.

So with that, once again I'd just like to thank you for coming and encourage you to ask any questions or offer any comments that you might have.

Thank you.

MR. WILKENING: I'm the project manager for the Environmental Protection Agency.

As you've heard, we've worked cooperatively with the State and the Department of Energy on this project, came up with a series of alternatives, and selected one that we believe is the best. EPA believe that the proposed actions for Track 1s and the groundwater are protective of human health and the environment and yet are cost-effective. And the preferred alternative for the groundwater is also consistent with the statutory requirement for treatment to a maximum extent possible.

However, these are just proposed alternatives. We do request your comments and questions regarding these, and we welcome them. No alternative will be selected until we have received all your comments and we have also given them due consideration. And so we thank you for coming here.

Nolan?

MR. JENSEN: Very quickly, by the way, I see many you have gotten some of the literature. This is the proposed plan. This is a document that gives some of the background about the projects that we'll be discussing tonight.

And also, I forgot to mention, just for a general overview of the cleanup program, this Citizens' Guide was developed and gives kind of a brief broad-brushed overview, so you're welcome to take those.

Also, Reuel asked me to thank those of you who have already submitted written comments. We have received some of those from you and appreciate that.

I'll go ahead and introduce our presenters now. First, Dan Harelson from Department of Energy will talk to us, and then Greg Stormberg, who also worked on this project as an investigator for EG&G, but I'll introduce Dan now and we'll do the presentation.

MR. HARELSON: As Nolan said, I'm Dan Harelson. I'm the Waste Area Group manager for the Test Area North and I work for the Department of Energy.

As I'm sure most of you are aware, the Idaho National Engineering Laboratory is a Department of Energy facility that's about 50 miles west of Idaho Falls. The whole site covers about 890 square miles. The majority of the work and the facilities are in the southern portion of the site. There is one facility called Test Area North which is in the northern part of the site. It's about 28 miles north of the other facilities.

The general groundwater flow direction is to the southwest. That's the Snake River Plain Aquifer. At the Test Area North, there's a little bit of a southeasterly component, but it hooks around and follows the general flow direction.

Test Area North was initially established to support the development of nuclear-powered aircraft. This was done in the 1950s and the very early 1960s. The program was canceled in the early 1960s, and that was followed by a couple of programs that did research and development on nuclear energy, and there are a couple of small programs going on there now, but it is being gradually phased out at the facility at that end of the site.

There are four main facilities at the Test Area North. The Technical Support Facility, as the name implies, is support facilities that includes maintenance shops, offices, the guard house, the fire house is located there. Core debris from the Three Mile Island reactor is also being stored there. And there is a hot shop, which is a large area where radioactive equipment can be worked on.

The Initial Engine Test Facility is the test stand that was used for these nuclear-powered aircraft engines. Those engines are currently on display down at the Experimental Breeder Reactor 1. This facility is not in use at all now and it is gradually being dismantled.

The Loss-of-Fluid Test Facility and the Water Reactor Research Test Facility were both built to support this research and development on nuclear energy. Those programs have been completed, were pretty well wound down by the early 80s. Currently at the Loss-of-Fluid Test Facility the Army is manufacturing advanced armor for the M1-A1 tank.

There are a couple of small projects going on at the Water Reactor Research Test Facility. One of them is research on a bomb detector for use in airports and that kind of thing.

This is a little bit closer view of the Technical Support Facility. The injection well that we are talking about is located right about here. This is kind of looking up to the north.

The injection well is a 12-inch diameter pipe that goes directly to the aquifer. It was used from about 1955 through 1972 to dispose of pretty much all of the wastewater that was generated at the Test Area North. That is everything from industrial and processed wastewater to treated sanitary sewage effluent.

The industrial and processed wastewater has created a contaminant plume. The most widespread contaminant is trichloroethylene, which is also called trichloroethene, or TCE. It extends in a plume that's about a mile and a half long and roughly half a mile wide.

The contamination was first discovered in 1987 during routine drinking water monitoring. We installed an air sparging system to treat the drinking water and keep the contamination levels below the federal drinking water standard.

In early 1990, the Department of Energy went in and removed about 45 cubic feet of sludge from the injection well itself. We followed that in 1992 with a proposed plan for an injection well interim action, and then also scoping for this meeting, or for the investigation that is the subject of this meeting, which is the Remedial Investigation/Feasibility Study.

The injection well interim action involves pumping and treating contaminated groundwater directly from the injection well. That effort began operation in mid-February. We originally intended to pump at about 50 gallons a minute continuously from the injection well. We have not been able to get off to that good of a start, or bad of a start, depending on how you look at it. We have been finding contaminant levels much higher than we anticipated, and also different contamination than we anticipated. We have been operating what's called a batch mode, which means we bring in about 15,000 gallons of water at a time, treat it to meet federal drinking water standards before it is discharged to an existing pond. To date with that action we have removed about 3,000 pounds of contaminants from the aquifer.

We're winding up the Remedial

Investigation/Feasibility Study. Greg Stormberg is one of the principal investigators on that study. He will describe what we learned from that study, give you a list of the alternatives or the types of alternatives that we looked at, and then I will come back to describe the alternatives that are in the proposed plan and describe why we think the preferred alternatives should be preferred.

So with that, Greg?

MR. STORMBERG: Good evening. As Dan mentioned, what I'm going to try to do is present the findings from the Remedial Investigation, and then what I want to do after that is introduce you to the types of technologies that we considered for the groundwater problem and how we refine that list of technologies down to a smaller group that we then subject to a detailed analysis and then ongoing into the selection of a preferred alternative.

With respect to the Remedial Investigation, there were two main objectives. One is to define the nature and extent of contamination or the types of contamination and what's their distribution. And then secondly, we use that information to evaluate the risk posed by those contaminants.

With respect to the nature and extent, as part of the Remedial Investigation, we installed a number of groundwater monitoring wells. There were quite a few monitoring wells already present, but we went in and refined our conceptual model of the plume itself with some additional wells. We also collected several rounds of groundwater samples and had them analyzed for a number of analytes, the whole wide range, in fact.

And what we found is that we're basically dealing with seven contaminants that we are concerned about, and they include both volatile organics and radionuclides. The volatile organics are TCE, dichloroethene and tetrachloroethene. The radionuclides include strontium-90, uranium-234, cesium-137 and tritium.

During one of the sampling events, we also identified another radionuclide, and that was americium-241 in the injection well itself, but we only found it one time. With the operation of the interim action, as Dan mentioned, we found some other contaminants, and probably the most notable is dichloropropane. Again, it's a chlorinated volatile organic compound.

Okay. So basically what I'm trying to say, with the additional types of constituents that we're finding, we've got a dynamic system and we need to keep an eye on it as we continue with the interim action and as we get into the remedial action phase for the Operable Unit 7B.

As Dan mentioned, the most widespread contaminant is TCE. The plume extends from the Technical Support Facility, about a mile and a half down the groundwater gradient to the Water Reactor Research Test Facility here. It's about a half mile wide.

All of the other contaminants of concern are less widely distributed. And specifically, they would -- they have only extended a quarter to about a half a mile from the injection well itself, so we use the TCE as our base line plume for evaluating the site.

That basically shows you the horizontal extent of contamination, but one of the other questions that was important to address was the vertical extent of contamination at TAN. The system of subsurface at TAN consists of basalt flows, numerous basalt flows that are typically fractured, with sediments that have been weighed down, we call these sedimentary interbeds, here and here.

The aquifer starts at about 200 feet below the land surface, and with the information that we have in hand, the effective part of the aquifer goes down to eight or 900 feet. So we have an effective thickness of about seven or 800 feet of aquifer, so it was important to determine the vertical extent of this contamination.

What we found as a result of the drilling and sampling program is that this interbed here, we call this the QR interbed, is composed of silts and clays and some fine sands, is 15 to 40 feet thick, and it's very continuous.

And this is fairly important with respect to the migration of the contaminants, because what we found with respect to groundwater quality is that the groundwater above this interbed is above drinking water standards for most of the contaminants of concern that I listed earlier, I mentioned earlier. However, the water below this interbed is free of contaminants above the federal drinking water standards. We have no detection of contaminants above any of the federal drinking water standards to date.

The importance of this information is that, as I mentioned, the effective part of the aquifer may be upwards of seven, 800 feet thick, and yet we are dealing with what we consider to be a contaminated groundwater plume that may be only 200 to 250 feet thick. What this does is it limits substantially the amount of water that we potentially have to treat. Okay.

One other point I'd like to make on the nature and extent of contamination is the source itself is an injection well. What we found is that 20 years after operations at TAN stopped disposing of the contaminants to the well, we still have the highest concentration of those contaminants in the immediate vicinity of the well. As we go away from this well, we see marked decrease in the contaminant levels. Even as far as only 100 feet away from the well, we see very sharp drops in contaminant concentration. What this tends to indicate is that we are probably dealing with residual undissolved contamination that's trapped in fractures and the flow tops of the rock matrix, okay, which is continuing to feed the contaminant plume itself. This also with, in addition to the limited extent, the volume, this has important implications with respect to the types of technologies we're going to take a look at.

With the nature and extent fairly well defined, what we did next is take a look at the risks posed by those contaminants. We basically took a look at three different scenarios.

The first was what we call a current industrial use scenario, where workers and visitors are using water from the current production well at TAN, they're located right here at the northern edge of the plume, from the present to about the year 2040.

We also took a look at two future residential use scenarios, one where a future resident can use contaminated water from anywhere within the general groundwater plume, and then the second future residential use scenario, we isolated specifically on the use of water from the injection well itself. We wanted to evaluate the two of them.

In all three cases, we evaluated various exposure pathways, how those contaminants are taken into the body. We evaluated the inhalation of the volatiles, for example while showering. We also evaluated the ingestion or drinking of that groundwater. And then for the future resident we included the ingestion of food crops that may be irrigated with contaminated water. Okay.

And what we found with respect to risk is that under the current industrial use scenario the total cancer risk to the workers and visitors equated to one additional incidence of cancer in about one million individuals. Okay. So using the definitions that Nolan presented earlier, we're below the acceptable risk range. We don't have a risk that we know of to the current worker.

The noncarcinogenic hazard index calculated at .003, so it's very, very low for that aspect, meaning it's unlikely that those sensitive populations, young children, older people, would be affected by any of the contaminants.

For the future residential use scenario, where water is taken from anywhere within the general groundwater plume, what we found is that the total cancer risk equated to three additional incidents of cancer per 100,000 individuals. We're still within the acceptable range defined by the EPA.

The calculated hazard index fell at about .8, again indicating that we're probably not going to adversely affect those sensitive populations.

On the other hand, when we take a look at the use of the water from the injection well itself what we found is that the total cancer risk equated to three -- two additional incidents of cancer per 1,000 individuals. Okay. So we're above the acceptable range as defined by the EPA. And the noncarcinogenic hazard index was calculated at 23, okay, so that the use of the water from the injection well itself if it is not remediated or cleaned up provides or poses an unacceptable risk in the agency's mind.

Okay. Well, knowing that we have a risk that we need to evaluate and take care of, the next step in the Remedial Investigation/Feasibility Study process is to generate a feasibility study. And the purpose of the feasibility study is essentially threefold, or there's three stages to it.

You want to identify the range of technologies that are available and potentially viable for that site. In this case we're dealing with groundwater, so we looked at groundwater technology.

Secondly, you take that whole range of technologies and you screen them according to criteria set forth by the EPA. And what that screening does is allows you to narrow the list of your alternatives down to let's say a handful that you can then put to a very detailed analysis, basically under a microscope, so that you can get to a preferred alternative that has potential application at the site.

You can look at the technologies for groundwater in six general categories that we call general response actions. Each of these categories except the No Action category here, there were typically several to quite a few different technologies that may be applicable.

For example, institutional controls include things such as alternative water supply, deed restrictions, fencing, things of that nature.

Containment technologies include things such as physical barriers, grout curtains for example, sheet piling. There's also hydraulic containment technologies where basically you just circulate that contaminated groundwater to prevent or minimize future migration.

Under the collection and removal of contaminants for groundwater technology, the most widely used are extraction wells, where we pull the contaminated groundwater out of the aquifer, we treat it, and then we reinject it with the injection wells or we put it in a pond and dispose of it.

Aboveground treatment technologies or treatment response actions are typically associated with the treatment of the waste itself, of the contaminated media itself. We could be dealing with things like air stripping, carbon adsorption, UV oxidation, ion exchange, things of that nature.

And then treatment in place, probably the most common technologies associated with this are bioremediation technologies.

Basically, that just gave you some examples of those types of technologies that we took a look at for whether they can be implemented and are they cost-effective and, you know, are they going to be effective.

We took the whole range of technologies, then we screened them against various criteria, as I said, that are set forth by the EPA.

Some of these criteria include: Does a given technology protect human health and the environment? Does it comply with the federal and state laws that are out there? Is it effective both in the short-term and long-term? How easy is it to implement? Some of them are more difficult than others. Does it reduce contamination, that could be toxicity or volume, or does it reduce the mobility of those contaminants?

We also look at cost. Two other criteria that we also screen the technologies or remedial alternatives are through public and state acceptance. That's why we are here tonight, to get your opinion on the technologies.

After we took the range of technologies and screened them, we basically came down to four remedial alternatives that we considered viable, and from that we selected a preferred alternative. And Dan will now give you the specifics on those four alternatives.

Thank you.

MR. HARELSON: As Greg said, we went through four or identified four alternatives that are presented in the proposed plan.

The first alternative is No Action. And just as the name says, we would not be doing anything to try to clean up or contain the contamination. The only thing that would be done would be monitoring to keep track of the way the contaminant plume changed.

Under the Superfund law, this alternative must be evaluated to provide a base line that everything else can be compared against.

The second alternative that we looked at was Limited Action. And this would involve limiting people's access to that contaminated water. And this could either be done through physical means such as fences, or signs saying "please don't put your well here," or it could be done through administrative means such as deed restrictions that said if you ever bought this property you could not install a well into the contaminated groundwater. It could also be accomplished by installing a well to provide alternative water well away from the contaminated groundwater.

And again we would be monitoring the change in the contaminant plume over time.

AUDIENCE MEMBER: Question?

MR. HARELSON: Sure.

AUDIENCE MEMBER: On the figures at the bottom, is that yearly, an annual cost, or --

MR. HARELSON: No, it would be amortized over 50 years, I believe, up to 2040.

AUDIENCE MEMBER: So that would be the total cost over the life of the project --

MR. HARELSON: Right.

AUDIENCE MEMBER: -- yeah, over 50 years?

MR. HARELSON: Alternatives 3 and 4

are very similar.

Alternative 3 is our preferred alternative. It would involve three main pieces.

The first piece would be continuation of this interim action that we've spoken about.

The second piece would be an attempt to remediate that hotspot, is what we call it, in the immediate vicinity of the injection well, where we think there is still this residual undissolved contamination.

And then the third piece would be extraction of a portion of the contaminated groundwater plume where we have dissolved contaminants.

The interim action would be continued for two years, and during that period we would be designing and constructing this enhanced remediation facility for the hotspot.

The continuation of the interim action would allow us to keep removing contamination while we're designing and constructing the second phase. It would also provide some limited measure of hydraulic containment. By sucking contaminated water back out of the injection well, it would keep it from spreading as quickly as it is.

The second piece would use what's called an enhanced remediation technology. We are looking at surfactant-enhanced and steam-enhanced technologies.

What a surfactant-enhanced technology uses is a surfactant, or basically a soap that would be injected around the injection well and then pulled back out. The soap or surfactant would improve the removal of contaminant. The contaminated water would then be treated, and then water that would meet drinking water standards would be reinjected.

Steam-enhanced remediation would involve the same kind of process except high-pressure steam would be injected and the steam would help strip the contaminants away from the aquifer.

The third piece of the preferred alternative would involve remediation of the portion of the plume that is contaminated above 5,000 parts per billion of trichloroethylene. And that is a fairly small piece of this contaminant plume.

Alternative 4 is identical to Alternative 3, except for the third piece, which would attempt to address this much larger portion of the contamination.

With Alternative 4, in theory, if this portion of the plume were remediated, the entire contaminant plume would be below federal drinking water standards by the year 2040, which is projected when the area would be available for other uses outside of DOE.

We would be on Alternative 3 operating for five to eight years. We would be looking to ten to 40 years on Alternative 4. There's quite a cost differential there.

Alternative 3 is our preferred alternative, even though it does not address the entire contaminant plume.

Alternative 3 focuses on the source. The remainder of the plume would be addressed under the WAG-wide and an INEL-wide comprehensive RI/FS. By focusing on the source, we are directing our resources at the worst part of the problem. We will be learning about the best way to approach this problem.

By deferring the cleanup of this wider

portion of the plume to these subsequent investigations, we hope to take these lessons and reduce overall costs and still reduce contamination.

So with that, I'll turn it over to Nolan.

MR. JENSEN: Thanks, Dan. That concludes the formal presentation part, but we'll go into a question-and-answer part now and we will have Dan and Greg come back up here and answer any questions that you have.

Just ask you, out of experience that we've had, if you have comments, save those for the comment part and keep the question and answer period right now and when we -- what happens is after we get comments and we go to the Record of Decision, there will be a written response to each of those comments. And so we like to make sure we keep those comments as pure as we can so that we respond to them appropriately. But keep it informal if we can and go ahead and ask any questions you've got.

AUDIENCE MEMBER: Well, couple of questions.

One, early on you had mentioned

50-gallon-per-minute pump-and-treat target rate. You're saying now that what you're doing is more of a batch type of --

MR. HARELSON: That's correct.

AUDIENCE MEMBER: Okay. What does that work out to? I mean, how close is that to your 50-gallon-per-minute --

MR. HARELSON: What has happened is we designed -- we took some sample from the injection well and found a set of conditions, a contaminant level, so we designed our treatment plan to handle those conditions. We've been finding contaminant levels that are 30 times higher than what we anticipated. We are finding new contaminants that we hadn't seen. And we believe that the reason we're seeing these new contaminants and higher levels is we never really pumped that injection well as hard as we've been pumping it.

I think in terms of pounds of contaminants removed, we are probably doing better than if we had been pumping at 50 gallons a minute at the concentrations we anticipated. So in terms of pounds of contaminants removed, I think we've been very successful. We haven't been, you know, pumping at gallons per minute that we planned on, but we have, as I said removed, over 3,000 pounds of organic contamination.

MR. STORMBERG: Just to interject, we are approaching the rate that we projected for the interim action. We're in the 40 to 50 range, but it's not continuous.

AUDIENCE MEMBER: Now I have a follow-up question to that.

Should the preferred alternative be put into place, would that continue to be a batch type process or are you looking at a continuous flow of --

MR. HARELSON: It would, I think, be continuous, yes. You know, part of this -- my training is in engineering, and the engineering of this stuff is easy. You have to know what you got coming in and what -- you know, you can design something to send out what you want. What the hard part is, is we are not sure what we're going to have coming in. And that's what we've learned on this interim action.

You know, the engineering was easy to design a plan for the concentrations we expected, but now we're getting concentrations that are much higher. And I don't see that changing with the preferred alternative. I think we're going to get surprises.

MR. JENSEN: But in general right now you're working in batch mode until things stabilize, and then you hope to go continuous; is that right?

MR. HARELSON: Yes, that's right. We have had initial batches that came in at very high levels, and those levels have kind of dropped off. And we are very hopeful that in the next very near future we'll be able to go to this continuous operation. But we had some initial very big slugs of contamination. The levels have dropped off, and we're to the point where we're very hopeful that we'll be able to go continuous very soon.

AUDIENCE MEMBER: Now, would the surfactants and steam tend to cause another one of these kind of a big bump of contaminants?

MR. HARELSON: Potentially -- well, I think that's the desired effect. Yeah, potentially they would. Greg can maybe talk to this better than I, but I think initially not only in the enhanced pump-and-treat, but in standard pump-and-treat, you start with high levels of contamination and as you work they tail off.

MR. STORMBERG: The difference between the conventional and the enhanced that we're proposing, as you might or might not know, under conventional technologies, all you can do is pull water out that has the dissolved contamination. Okay. In the case of the injection well, we have some suspended particulate type matter that also has some contamination with it, which is causing fairly large peaks in our concentrations.

With the enhanced alternative or enhanced technologies, the purpose of that enhancement is to increase that solubility to get more of the contaminants to come out of that undissolved residual phase into the dissolved phase, and then we pull it out.

Basically we're trying to circumvent the chemistry and boost up the solubility of the contaminants. So I think that the system would be designed inherently to deal with high concentrations, much higher than we anticipated in the interim action.

AUDIENCE MEMBER: I would assume also a somewhat different nature of contaminant; right? Some of the contaminants would be naturally in the water rather than -- would be pretty easy to pull out of the water, wouldn't they?

MR. STORMBERG: Some are -- some sorb to the rock matrix more than others, yes, hopefully it will enhance both.

AUDIENCE MEMBER: So are you saying some are attached to the rocks, they've adhered to the rocks?

MR. STORMBERG: More so than -- for example, the volatile organics are fairly soluble in relation to some of the radionuclides. The radionuclides such as cesium tend to have high sorption capacity.

AUDIENCE MEMBER: Can you put that chart back up that has the underground sort of...

MR. HARELSON: The cross-section?

AUDIENCE MEMBER: Please.

Now, this injection well at its -- can you explain to me why there's a variant of 200 to 400 feet, or what is the -- when this thing tails out, at what level does it tail out?

MR. HARELSON: The injection well is drilled down to, I think, 305 feet. This -- yeah, roughly here. The interbed here is at about 400 or 420 feet below the surface. The water table is about 200 feet below the surface. We put wells, sampled above and below. Above the interbed it was contaminated, below it was clean.

AUDIENCE MEMBER: So if the water level today is at 200 and you're finding high contamination at the 200-foot level because it's within that aqueous environ, what if between 1952 and 1971 this -- when the injection process, what if the aquifer were higher and there is contamination above the present water table?

MR. HARELSON: That's a very good question.

Greg?

MR. STORMBERG: He passes the hard ones on to me.

It has dropped over the course of the last ten years, I think on average three or four feet it's dropped. Okay. With the tools that we have now to analyze for some of the constituents, sometimes we can see that. Okay. We can tell whether that has happened.

We do not see that with the radionuclides, for example. We do logging on these wells and we would be able to see in the vicinity or just above the injection well if there were say a spike of cesium. I can't answer that for the volatile organics. It is possible, as Dan mentioned.

MR. HARELSON: On these remediation technologies, I think the steam enhancement could be designed to try to address that, so that you could clean up above the water table. You know, you would inject your steam and then collect it, and you could put your collection up here so that you could pass that steam through the portion that doesn't necessarily have water in it now.

I'm not sure on the surfactant. Can you do that?

MR. STORMBERG: No. The steam would cause more of a volatilization if there were contaminants.

AUDIENCE MEMBER: Is there a plan to look at that now or attempt to do that?

MR. STORMBERG: No, there is not.

AUDIENCE MEMBER: Because if the water table goes back up, aren't you going to have the same problem?

MR. STORMBERG: If there is residual contamination left. If it's just the volatile by-product, probably not. As Margie English mentioned, this is a very complex system. As you might know, there is undissolved residual contamination. There are quite a few similar sites across the nation with this same problem, and that's why we are proposing these innovative technologies here rather than conventional technologies, because conventional pump-and-treat has a very, very difficult time of success to the scale that is necessary.

AUDIENCE MEMBER: I have some concern about the surfactant, because although I understand the purpose of it, how can you be sure that you're going to pump all of it out? And what kind of a life span does surfactant have in the groundwater?

MR. HARELSON: That is also a concern of ours. We would need to select a surfactant that is nontoxic and biodegradable, so that aspect of it would be looked at very carefully. And that is a very legitimate concern.

MR. STORMBERG: They do make

surfactants that are biodegradable.

MR. JENSEN: Soap.

MR. STORMBERG: Yes, basically.

AUDIENCE MEMBER: I'm not sure that this is quite the place to ask this, but one concern that I've had for some time is at what point in the process the cost part of it is factored in.

It's always been kind of my hopes that the science would come first, and then once having looked at that then say, okay, now what is this going to cost, rather than saying, well, you know, factoring it in all the way down the line.

Certainly, you know, the Alternative 4 looked to be two to three times the amount of the preferred alternative.

I guess my question would be, were these evaluated first as far as effectiveness and then have the dollar figures attached, or was the preferred -- is the preferred alternative, you know, basically a combination of the two?

MR. HARELSON: They were evaluated -- cost is a factor. There are a hierarchy of -- this standard EPA methodology for evaluating things has a hierarchy of what you look at most importantly. And they have the -- what they call threshold criteria, which are protect human health and the environment and comply with ARARs, which are regulations, laws and regulations.

Those are looked at first. These others are looked at on an equal footing. With Alternative 3, we're not saying walk away from the rest of the plume because it costs too much. What we're saying is, let's try to remediate the worst part of the plume, see what we can learn, and then address the rest of the plume in the subsequent investigations when we'll understand the problem better and can perhaps approach it more cost-effectively.

AUDIENCE MEMBER: Obviously the goal is to clean this place up, but the problem is, if you've got a real bad problem in the area of the injection well, and you don't know where the water table was before, I mean, it's good to clean it up, I see that, but to spend $25 million when you don't know if you're even going to make a dent if the water table comes back up, I mean...

MR. HARELSON: That's a lot of money.

AUDIENCE MEMBER: That's a lot of

money.

MR. STORMBERG: The water table has not dropped I think as significantly as the comments implied. It has dropped three or four -- three to five feet in the 50 years. We have fairly good records in that respect.

AUDIENCE MEMBER: Okay.

MR. HARELSON: Is that trend going to --

MR. STORMBERG: I don't know about the trend, but we know we have at least 250 feet of contaminated soil; so we're looking at a relatively -- I mean, your question has come up before, very definitely.

AUDIENCE MEMBER: Well almost the inverse of that, but at the rate we seem to be sucking on that aquifer down at this end, looks like as you draw more and more from one end the rate of dispersion might come even faster. I presume that the network of monitoring wells is looking at that.

MR. STORMBERG: Yes, it is. The water table at TAN is fairly flat, meaning that it only -- the water only moves about a half a foot per day, which is relative slow for the Snake River

Plain. And as you just mentioned, the monitoring network is designed the monitor the continued migration dispersion of the contaminants.

AUDIENCE MEMBER: Kind of along those lines, the treated water would be reinjected?

MR. HARELSON: (Nodding affirmatively.)

AUDIENCE MEMBER: At the same site?

MR. HARELSON: It would be in the -- nearby, not in the plume. We would try to locate the reinjection points to facilitate our remediation. It might be possible to locate these reinjection points so that it actually pushes the contaminated groundwater towards our extraction wells. The water that would be reinjected would need to be treated to meet the federal drinking water standards, so it would be water that is clean enough to drink right out of the pipe.

AUDIENCE MEMBER: So, assuming that the water going back in is clean and all of that, there would be little net loss of water in the aquifer then as a result of these?

MR. HARELSON: That's right.

MR. STORMBERG: Right.

AUDIENCE MEMBER: The air stripping, I would assume that, you know, now, that's for the volatile organics. Right?

MR. HARELSON: Right.

AUDIENCE MEMBER: Now, is there much evaporation as part of that?

MR. HARELSON: Of the water?

AUDIENCE MEMBER: Yeah.

MR. HARELSON: It would be incidental. There would not be a lot of loss. In terms of the air stripping, we are trying to approach the design of the treatment processes in a little bit different way than we have on other projects. On other projects, we have kind of come in and said, this is what we want to do and this is how we want you to do it. That's what we've told the subcontractors that we've hired.

One of the things that I've learned from the injection well interim action, you know, we wrote a Record of Decision on the injection well interim action and we said, this is what we're going to do, and we told our subcontractor, this is how we want you to do it, we want to use air stripping, we want you to use ion exchange.

The subcontractors have come back and

said, you know, this is a better way to do it and we would have done it this way, except we had to do it, because that's what was said in the ROD.

So we are trying to write the ROD in a little bit more flexible manner, so that the people that are the real experts on the cleanup technologies that are out there available across the country can come back to us and say, you know, you told us what you wanted, this is how we would do it.

And then between me and the State and EPA, we can look at it and say, yeah, that seems like a good approach, it's going to -- has the best chance of accomplishing what we want to accomplish, it's not going to make the problem worse, it's not going to pollute the air.

So air stripping is a possible technology, but we're also open to considering other technologies.

MR. JENSEN: Any other questions?

AUDIENCE MEMBER: I have one.

At the various levels of testing that you do, do you find that certain of these problem chemicals travel up better or more -- in greater numbers, or certain sink, some are heavier, some are lighter?

MR. HARELSON: Yes. The trichloroethylene, the TCE, which is the widespread contaminant, is much denser than water. And we're not sure if there is a separate phase, like there's salad dressing that separates out, or whether there's simply, you know, this residual sludge, you know, the sanitary sewage waste from down there. There may be just organic matter that has a lot of this TCE tied up in it, but there is density differences, and there is potential stratification based on density.

MR. JENSEN: Any other questions?

By the way, what we'll do is when you're done with questions, we will do the comment period, and then Dan and Greg will be around and you can talk to them one-on-one later tonight if you'd like, but we welcome any questions you have now while we're here.

Okay. Let's go ahead and go into the formal comment period then.

During the comment period part now, this is the time for you to give your comments, state your concerns, speak your peace, and we won't respond to those. We'll just let you say what you'd like to say.

So if you would, if you have a comment to give, would you please give your name first, and speak loudly so the court reporter can hear you, and we will just let you give you comments.

Is there anybody -- I don't think anyone signed up at the back to give a comment, so we will just open it up if anybody wants to give one. We may ask you for a clarification to clarify that, if we think there is something we might not understand. In general, it's your time if you'd like to take it.

Anybody?

Going once, going twice. Okay. And by the way --

AUDIENCE MEMBER: I do have a quick question. What is the deadline for written comment?

MR. JENSEN: I was just going to cover that.

Let's go ahead and close the comment period, but at the back of the proposed plan there is an addressed, postage-paid sheet. And the comment period goes through June 17. So anytime between now and, what, about a week from

Monday, something like that, you can submit a written comment and attach to that, or whatever you need to do.

AUDIENCE MEMBER: And I may need to ask Rick about this. The other information that we might need to comment on this is at your offices?

MR. TROMBLAY: Yes, that's right.

MR. JENSEN: Also, by the way, right inside the proposed plan there are addresses for where the information is, like in Boise, again, that's Rick's office's address there.

If you need to call for information, there are phone numbers for -- this is the DOE office, in fact, Reuel Smith's number is here at the bottom. The EPA office number, address is here, and the State office here in Boise is in there as well. So if you need information from any of us, you can feel free to call. Okay?

All right. Let's take about a ten-minute break and we'll let the other part, our presenter, get set up. The second half is a lot shorter than the first half, if you care, and we will talk about the Track 1s in about ten minutes.

(Recess.)

MR. JENSEN: The second part of the presentation, even though it's part of the same proposed plan, it's kind of a different subject. And that is, when we first signed the Federal Facility Agreement with INEL, there were about four sites that we knew about that needed to be looked at.

Some of those are very obviously problems, like the groundwater we talked about and the injection well.

There were several other sites, however, that were very small. Maybe somebody heard about an acid spill or an oil spill or a gasoline spill, or several things like that. And we hadn't done a lot of investigation on those, so what we did under the Federal Facility Agreement is we set up a system whereby we could screen to see if there was an issue there that needed to be looked at further, whether it was something we could clean up real quickly or whether there was nothing there at all.

So what we did is set up a couple of investigation processes. We call them Track 1 and Track 2, just kind of made-up terms. And what they in general are, are for sites that are fairly small. And for a Track 1, generally the approach is that we know about the site, but there is information that we have, and we just go in and evaluate the existing information. There may have been some sampling data already in the files, or we may even collect a couple of samples. But in general, this is more of an evaluation based on what we know about the site already.

A Track 2 is more intense. We actually generally go out and take a few samples there and do a risk evaluation based on that.

The outcomes of those are, first of all, if we don't find anything, we make an initial determination that there's no more action needed.

If we find out that there is a definite issue, it's something we can run out and grab quick, like, for example if there was an oil spill or solvent spill, and it's a fairly confined area, there's stained ground there, we can see it, we can go out and grab it.

On the other hand, if we find out that there is contamination there that needs to be investigated further, then we forward the site to our Remedial Investigation/Feasibility Study.

So that is kind of the general approach we set up.

Tonight what we're going to be talking about are several sites that were the Track 1 type, and sites that essentially we made an initial determination no further action was necessary.

And as we do that, that is a preliminary determination, and now we're taking that and bringing it for public comment. And we will formalize that initial determination in the Record of Decision.

And I think this is the second project we have done that on. The one a couple months ago for Naval Reactors Facilities had some preliminary investigations that we were formalizing there as well.

But anyway, I'll go ahead, our presenter tonight is T. J. Meyer from EG&G, and I'll introduce him now and he will give the presentation on the Track 1s.

MR. MEYER: Thank you. Today I'm going to be presenting 31 Track 1 investigations which were outlined in the proposed plan, and then present the agency's recommendations for these 31 Track 1 investigations.

As Nolan said, Track 1 is a preliminary investigation. And one way to look at it is that, when you have a lot of existing information on a site, we try to pull all that information together to see if we can come to an earlier decision of what to do: No further action, removal action, or go out and do further investigation. And in this way, we saved a lot of money and we streamlined the investigation on these sites.

Tonight I'll be talking about 31 sites. There a total of 40 Track 1 investigations at TAN. The remaining nine need further investigation, so we will be presenting them at a later time.

The 31 investigations we will be talking about today can be categorized as 18 abandoned and removed or inactive -- they're either removed or they're inactive underground storage tank sites. There's ten potentially contaminated sites. And I say "potentially contaminated," because the initial information that we had was that there was some debris on the ground, and it wasn't very well characterized, and so it looked like there was something there, but also looked like we had enough information to go out and make an assessment. So they were considered to be potentially contaminated.

There are three waste disposal sites also.

Each one of these sites had Track 1 investigation done, where all the historical information was gathered. And that information consisted of engineering drawings and process knowledge of how the site operated, including knowledge of what went on back in the '50s and '60s and '70s at some of these sites, and a collection of photos to try to document how the site was used and what happened at the site, to get an idea of the past condition.

Then each of the sites were visited, and in many cases, samples were collected to try to determine what the current conditions are at the site in terms of contamination and also with what the site looks like today.

Finally, a risk evaluation was done on this information, and the whole packet was put together.

These investigations typically are anywhere from 30 to 50 pages. This is just one of the sites. We have binders with all of these packets together, if anybody is interested in looking at them, and they're all available in the Administrative Record, the public record.

These packets consist of a bunch of questions, tables, sampling information, and the risk assessment which was used to describe or evaluate the site. And this is the evaluation information that the agencies have reviewed to make their recommendation.

The locations of these 31 sites occur across the TAN complex. Each of the major facilities were discussed earlier: The Loss-of-Fluid Test Facility; the Initial Test Engine Facility, located north, the Water Reactor Test Facility, which is in the southeast; and the main facility, which is known as the Technical Support Facility.

Each one of these facilities has several tanks at them, and the tanks are shown in a purple or violet color at each of the facilities.

Only the Loss-of-Fluid Test Facility and Technical Support Facility had potentially contaminated soil sites, shown in green.

All three waste water sites occur at the Water Reactor Research Test Facility, and they're shown here in blue. And these wastewater sites received mainly processed water, uncontaminated processed water or sanitary water.

The results of the Track 1 investigations showed that 23 sites had no contamination at all. Nine of the sites, as I mentioned earlier, require additional work, and we're not going to be talking about them today.

Of the remaining 31 sites, eight of them had contamination found at them, and those sites are listed below in this table here. The location of the facility is shown here, and each of the facilities had a contaminated site. They weren't just localized at one facility.

The types of sites can be really characterized mainly as tank sites, and then there was one contaminated soil site.

This site here where there's contaminated soil, there was an underground storage tank nearby that had overflowed and had caused the problem.

The types of contaminants were shown here, and they're typically what you'd expect at underground storage tanks: Benzene, toluene, ethyl benzene and xylene type contaminants. And then the one contaminated site had a radionuclide.

The risk assessment that was done of these eight sites showed that there were only two sites that had potential carcinogens present, benzene and the cesium-137, the radionuclide. And the risk assessment for both of these showed that the contaminant levels present at those sites were below the carcinogenic risk range outlined by EPA, meaning there was acceptable risk range here.

The remaining risk sites are not considered carcinogens and the risk assessment showed that the hazard index for the ethyl benzene, the toluene and the xylene were below the noncarcinogenic hazard index level, indicating that sensitive populations were likely not to be affected by the level of contaminants found there.

If each of you have a proposed plan, I

would call your attention to Table 3 on page 14.

And the first two columns are shaded for cesium and benzene, and they show the amount of benzene or the amount of cesium that would need to be present to create a risk above 10 to the minus 6. And each of those sites had contaminant levels below the numbers shown here.

The remaining three columns, the noncarcinogenic contaminants, toluene, ethyl benzene and xylene, again, you can see the contaminant levels there, and the levels we had at each of our sites were far below that, orders of magnitude below, and the levels are actually shown or described in each of the site descriptions.

In conclusion, the agencies are recommending no further action for each of these 31 Track 1 sites, based on the fact that the 23 sites from the preliminary investigations and historical records and the field sampling, no contamination was found, and for the remaining eight sites, the risk assessment showed that contaminant levels present posed an acceptable level of risk.

Are there any questions?

AUDIENCE MEMBER: Well, one question. Being as, let's assume that this gets to the Record of Decision stage and they say, okay, our decision is that there is no problem here, we're going to move on. Do these sites remain in the inventory and will they be revisited at some point just to reconfirm that decision?

MR. MEYER: Yes, they will be revisited. If you remember earlier when Nolan was talking about this, there is this one Operable Unit at end of the TAN investigation call Operable Unit 1-10. That's the WAG 1 comprehensive RI/FS. Each of these sites will be revisited. First of all, the one question that will be asked is: Has anything new been learned that would change the earlier decision? And then they would be revisited to assess the cumulative risk of not just the one site that we've done here, but they'll see what the risk is at this site as well as other sites around to give you an idea what a receptor living there would see in terms of the cumulative aspect.

MR. JENSEN: This one right here would start in about a year.

MR. MEYER: Does that answer your

question?

AUDIENCE MEMBER: Yes, it does.

Then I have one other question. I understand that in the -- oh, that the reauthorization for CERCLA is going through Congress right now. They're talking about establishing some limits for radionuclides similar to what they've done with establishing limits for carcinogens. I've heard talk of 10 to the minus 4, 10 to the minus 6, various levels, to establish some kind of a cleanup or some kind of a -- put a number on all of this, so to speak, quantify it somehow.

Should these changes go in, does this affect any of the work that's being done right now, particularly with the cesium and some of the others?

MR. MEYER: I really don't know the answer.

Nolan?

MR. JENSEN: Generally what happens in a Record of Decision is when that thing is signed you freeze your requirements at that date. So essentially whatever applies at the time the Record of Decision is signed, that's what applies. Now, I'm sure there are exceptions to that in some cases, as there always are, but that's generally their approach.

AUDIENCE MEMBER: So conceivably if the EPA does establish these levels for radionuclides, when we get to this comprehensive investigation, they might then apply those levels to the previous data?

MR. JENSEN: Possibility. For example, one thing we might do, if it turns out, for example, that this new law or the new reauthorization would drastically change what was done earlier, then if we decided with the EPA and State's concurrence that we wanted to do something different, that would probably be a ROD amendment and we would come back and do this same process over again. So that if we did do that, you would hear about it and get to comment on it. But I'd be pretty surprised if they changed things that drastically.

I think the intent is more to streamline and set some levels which, you know, they can be fairly comfortable with, and perhaps reduce some of the effort that goes into risk assessment.

AUDIENCE MEMBER: Well, yeah, I know some of what we've been learning is that essentially some of the ways we've been measuring just aren't working, and I got the feeling it was to make things easier on everybody to quantify some of these levels, particularly the radiation levels, but I just didn't know how this could affect what's happening here.

MR. JENSEN: Did you want to say anything, Jeff, in addition or --

MR. FROMM: Well, yeah. I thought EPA was actually thinking about something more around 2, than 10 to the minus 4. I think if anything they might be a little more conservative with the risk management we're using now than what reauthorization might put into play. Based on what I've read, that might be the case. But I don't think there would be a great change either way.

MR. JENSEN: Just for your information, too, there is another investigation that is just getting under way. It's Operable Unit 10-06. And that one is looking specifically at rad-contaminated surface soils at the site. And one of the things we're trying to do there is get a feel how the risk assessment will work and try to come up with some of our own criteria or levels that we might clean up to. But that one is still ongoing.

Any other questions?

Going to be easy on me. Okay.

Reuel asked me to mention, on the back of the agenda for tonight we do have an evaluation form. We know we throw an awful lot of information your way at these meetings, and we're always trying to do better, and you're the ones that can tell us where we need to improve, so, please, if you have suggestions on how to improve these meetings, write them down.

AUDIENCE MEMBER: Coffee.

MR. JENSEN: Okay. Any more questions before we start the comment period?

And maybe I should even ask, is anyone planning on giving a comment?

Then we won't even bother with that formality. One more chance. I surely don't want to stop anyone who would like to give a comment.

Okay. I think that concludes it then.

Thank you very much for coming. And again, the comment period goes to June 17, so feel free to comment any time during that period, and we will see you next time.

(Meeting concluded at 8:13 p.m.)

REPORTER'S CERTIFICATE

STATE OF IDAHO)
) ss.
COUNTY OF ADA)

I, DENECE GRAHAM, Certified Shorthand Reporter and Notary Public duly qualified in and for the State of Idaho do hereby certify:

That said hearing was taken down by me in shorthand at the time and place therein named and thereafter reduced to computer type, and that the foregoing transcript contains a true and correct record of the said hearing, all done to the best of my ability.

I further certify that I have no interest in the event of this action.

WITNESS my hand and seal this 8th day of July, 1994.

Denece Graham

DENECE GRAHAM, C.S.R. and
NOTARY PUBLIC in and for
the State of Idaho.

My Commission expires April 21, 2000

INDEX

Look-See Concordance Report

UNIQUE WORDS: **1,418**
TOTAL OCCURRENCES: **4,166**
NOISE WORDS: **385**
TOTAL WORDS IN FILE: **11,586**

SINGLE FILE CONCORDANCE

CASE SENSITIVE

NOISE WORD LIST(S): **NOISE.NOI**

INCLUDES ALL TEXT OCCURRENCES

IGNORES PURE NUMBERS

WORD RANGES @ BOTTOM OF PAGE